

Universal Sample Preparation Module for Molecular Analysis in Space, Phase I

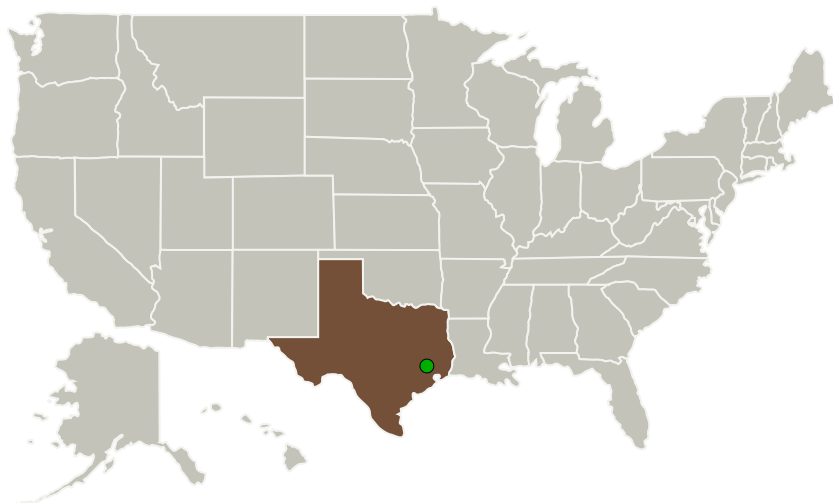
Completed Technology Project (2011 - 2011)



Project Introduction

Lynntech proposes to develop and demonstrate the ability of a compact, light-weight, and automated universal sample preparation module (USPM) to process samples from various sample matrices (blood, swab, etc) to yield high quality nucleic acids for downstream molecular detection and identification. This unit allows previously complicated, labor-intensive, and time consuming processes to be carryout by a turn-key and closed system. Current utilization of biological testing in the ISS is limited by available upmass, downmass, and crew time as well as by the capabilities of the interfaces and hardware already developed. Our proposed sample preparation module can play a major role in achieving the reality of on-orbit molecular analysis techniques (gene array test, DNA analysis, DNA storage) that would extend and enable additional research and development activities in space, including the ISS. This will enable near real-time space research studies such as space radiation exposure and enhanced pathogen (bacterial, fungal, viral) virulence in micro-gravity, to be performed without having to store and bring the samples back to earth for complete analysis.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Lynntech, Inc.	Lead Organization	Industry	College Station, Texas
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations

Texas

Project Transitions

**February 2011:** Project Start**September 2011:** Closed out

Closeout Summary: Universal Sample Preparation Module for Molecular Analysis is in Space, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/138557>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Lynntech, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

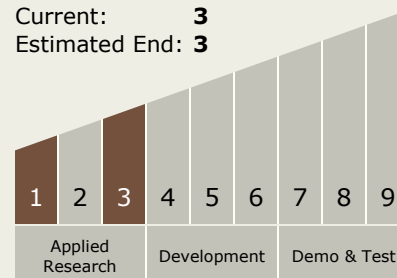
Carlos Torrez

Principal Investigator:

Season Wong

Technology Maturity (TRL)

Start: **1**
 Current: **3**
 Estimated End: **3**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.3 In-Situ Instruments and Sensors
 - └ TX08.3.2 Atomic and Molecular Species Assessment

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System